

SWBAT: define shielding and give an example

Jan 4-7:20 AM

Welcome!!!

SECA Physics
Wednesday 17 February 2016

* Pick up:

- notebook
- slip of paper (for later)

H. Leslie Grebe

Test Friday!

Opening Questions:

What can we tell about the charges in these 2 pictures?

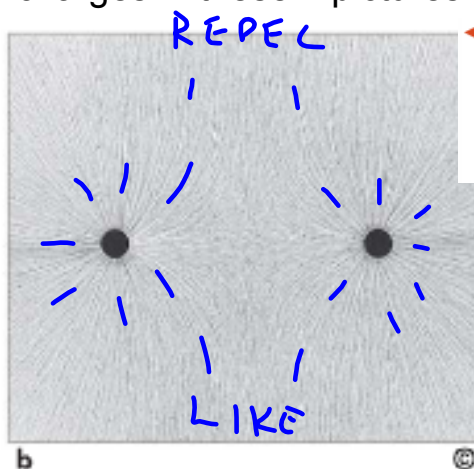
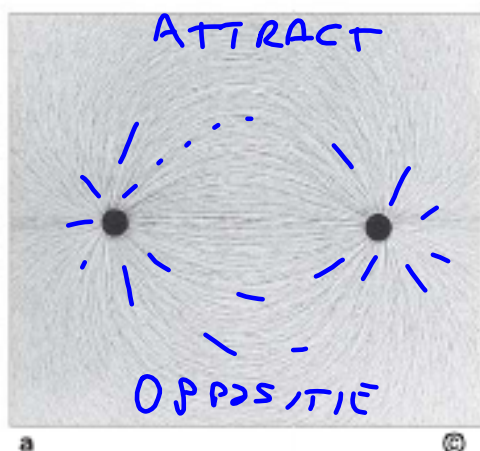


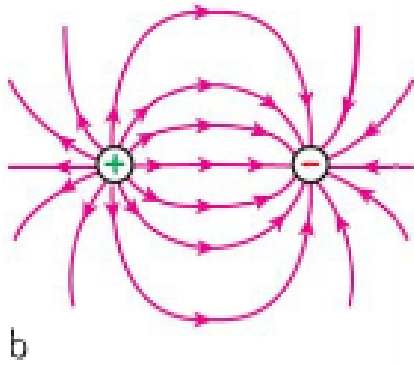
FIGURE 33.5
Bits of fine thread suspended in an oil bath surrounding charged conductors line up end to end along the direction of the field. The photos illustrate field

Centering

Sep 7-7:04 AM

Big Idea last week:

Electric charges are surrounded by electric fields



"Rules" for E-field Lines:

① ARROWS GO FROM POSITIVE TO NEG.

② ARROWS SHOW STRENGTH

Feb 2-7:44 AM

Cell Phone Experiment!

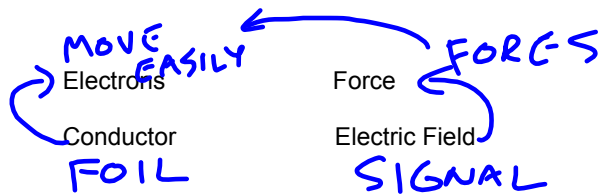
Will it ring when it is wrapped in foil?

COVERED	WILL IT RING?		RESULT:
	YES	NO	
COMPLETELY SEALED	6	1	NO RINGING
1/4 BOTTOM	4	3	YES!
TOP 1/2	1	6	YES
ALL THE WAY, NO SEAL	3	4	YES
WAY INSIDE NO SEAL			NO

Feb 18-6:46 AM

Pair up:

Why wouldn't the cell phone ring when it was covered and closed?



CLOSED → ELECTRONS MOVE
UNTIL FORCES
BALANCE OUT
= NO SIGNAL INSIDE

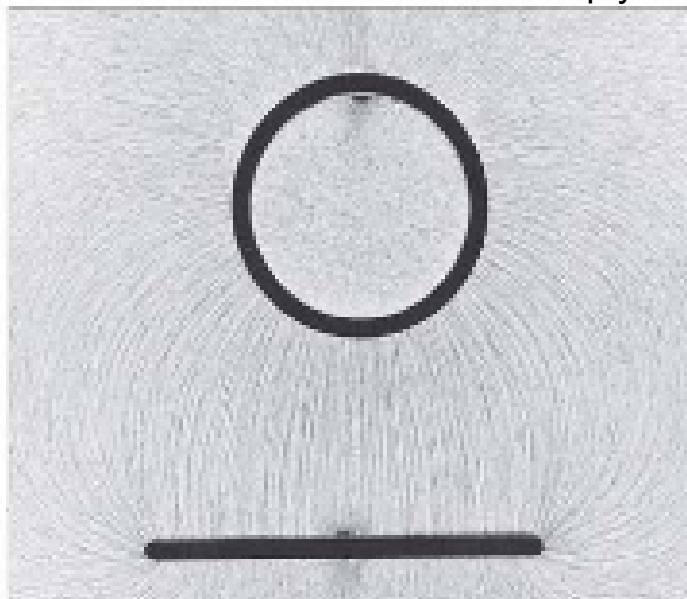
Feb 18-6:46 AM

Big Idea of the Day: Shielding:

A closed conductor shields the inside from outside electric fields.

or...

NO electric field inside a closed empty conductor!



Feb 18-6:47 AM

Coaxial Cable - what are the layers?

COPPER WIRE - C
 WHITE PLASTIC - I
 FOIL
 WIRE MESH > C
 BLACK RUBBER - I

Think on your own:

SHIELDING

Why do the makers of coaxial cable put a layer of foil in it?

SIGNAL THRU. COPPER

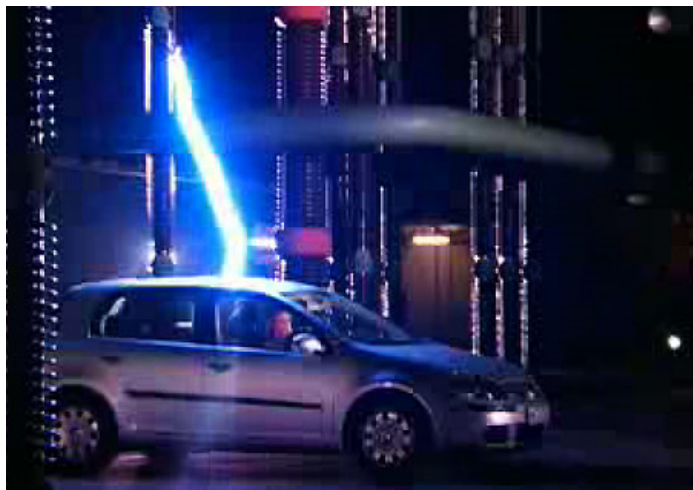
FOIL KEEPS INSIDE SIGNAL IN
 KEEPS OUTSIDE SIGNAL OUT

Feb 13-8:31 AM



It's NOT about the rubber tires.

Why are you safe inside a closed car struck by lightning?



SHIELDING: INSIDE A CLOSED CONDUCTOR

Shielding inside a closed conductor: no electric field

What kind of electric field is inside an empty conductor? NONE

Feb 18-6:37 AM

Daily 3 Questions

- * Every day except test/project days
- * 3 Questions on the topics of the day
- * Main source of daily points
- * I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

You can't get your points if you don't have your **NAME!!!**

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1. Did the cell phone ring when it was completely covered and closed in foil?

NO!

2. Describe the electric field inside a closed empty conductor.

NONE

3. Besides the cell phone, give another example of electrical shielding.

- CABLE
- CAR
- RING

Jan 3-7:48 AM